

## Results of observations of asteroids at the Russian-Turkish RTT-150 telescope from 2004-2013

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### Abstract

© 2015, Allerton Press, Inc. We report the results of analysis of the data volume containing 13834 topocentric positions of 231 asteroids obtained from observations at the Russian-Turkish RTT-150 telescope (TÜBİTAK (Scientific and Technological Research Council of Turkey), Turkey) in 2004–2013. The positions of asteroids were calculated with the differential reduction method in the ICRS system with the use of the reference catalogs of the UCAC series. The observational program covered the main-belt asteroids closely encountering the other asteroids and the near-Earth asteroids (NEA). For the main belt asteroids, the mean-square error of one position was 84 and 68 mas in right ascension and declination, respectively, while it was 160 and 120 mas, respectively, for NEAs. The obtained volume of the asteroid positions widens the arc of groundbased observations of these bodies, which is important for evaluating their orbital elements with a higher accuracy. Moreover, observations of the main-belt asteroids in the periods of close encounters yield valuable material to solve the problem on accurate estimation of the masses of asteroids with a dynamic method. It has been shown that the supplementing of the input dataset with the here-reported observational volume decreases the error in the estimates of the perturbing asteroid mass and the orbital parameters of perturbed bodies.

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